Knight. (C. H.)

Note on the Galvano-Cautery in the Treatment of Hypertrophied Tonsils.

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CHARLES H. KNIGHT, M. D.

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NOTE ON THE GALVANO-CAUTERY IN THE TREATMENT OF HYPERTROPHIED TONSILS.*

By CHARLES H. KNIGHT, M. D.

In a paper on this subject, read at a meeting of this association two years ago, the following opinion was expressed: "Galvano-cautery should be reserved for a comparatively small proportion of cases, including those in which the hæmorrhagic diathesis is present or suspected, those in which vascular anomalies may be recognized, those in which anatomical conditions prevent a sufficiently complete excision of the organ, and those in which the use of a knife is positively declined." With regard to adults it was recommended that "a patient above the age of twenty years be allowed his option after a fair presentation of the risks and advantages of the two methods"—namely, cauterizing and cutting. During the last two years my experience in eighteen selected cases in hospital and private practice has, on the whole, confirmed my original conclusions. As to cauterizing tonsils in young children, it may be said that it is next to impossible to persuade children under ten years of age to submit to galvano-puncture often enough and to a

* Read before the American Laryngological Association at its eleventh annual congress.

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degree sufficient to accomplish much, and the use of the cautery-loop is in them out of the question, except under general anæsthesia.

The experience of Saint-Germain,* who is a rather extravagant advocate of ignipuncture, has been decidedly different from my own. The ages of his patients, as recorded in twenty observations, range from two to fifteen years, but it is noticeable that in his younger cases a single cauterization sufficed. The inference is natural that he is satisfied with less complete results, especially since he remarks that tonsillotomy should be practiced only *when the tonsils meet in the median line.* It seems to be accepted in this country that tonsils which do not reach this degree of enlargement may be sources of irritation and should be removed. Paul Balme,† who follows the teaching of Ruault, advises the amygdalotome for children of from two to five or six years. After the latter age he finds electro-puncture practicable. He is in the habit of transfixing the tonsil at four or five places with an electrode brought to a white heat, the cauterizations being repeated three to six times, at intervals of ten or twelve days. To one who has witnessed the terror of a child who has once felt the heat of the cautery point when it is proposed to repeat the experiment, this statement seems almost incredible. In my opinion the guillotine is far preferable in children, and in those of highly nervous temperament it should be used under nitrous-oxide gas or ether, the anæsthesia with the latter not being profound. For these cases nitrous oxide is the ideal anæsthetic. Its effect is rapid, recovery is prompt, and the period of unconsciousness is ample. Thus, much of the shock attending an excision of the tonsils may be avoided, the bleeding is not

* "Rev. des mal. de l'enfance," 1884, ii, 520; see, also, "Trans. of the Ninth Internat. Med. Congress," vol. iii, p. 457.

† "De l'hypertrophie des amygdales," Paris, 1888.

appreciably more, and the operation may be done with equal thoroughness. In older children and in adults the galvano-caustic point and knife, and more particularly the cautery-loop, are of service in the treatment of hypertrophied tonsils. My attention has been especially directed to the effect of cocaine, and to a comparison of the degree of pain experienced by the same individual under different methods of operating on either tonsil. It is very difficult to estimate pain. One patient will declare that excision of a tonsil does not hurt at all, while another will make the most vehement demonstrations. But at least an approximate idea of the pain may be formed by adopting a different operation for the second tonsil.

This procedure was resorted to in five of my cases. In every case cocaine in ten-per-cent. solution was applied on a pledget of cotton or sprayed into the fauces. In one the cold-wire snare was used on one side and the galvano-cautery loop on the other. In this case the pain of the cold-wire operation was so intense that, when nine days later the removal of the second tonsil with the cautery loop was undertaken, the patient, a young woman of seventeen, was so nervous and restless that great difficulty was found in applying the loop. Consequently, the cold-wire operation proved to be the more radical. There is no question, however, that in this case the hot wire was less painful, more rapid, and was followed by less inflammatory reaction than the cold snare. After the latter the pain persisted, and for several days the formation of a phlegmon was threatened.

The histories of the four remaining cases, in which the cautery loop and the amygdalotome were used, are very similar. That of my most recent case will answer for all.

The patient was a colored girl, twenty-four years old. The right tonsil was removed completely two weeks ago with the cautery loop. Five days later, reaction having subsided, the

left tonsil was excised with the tonsillotome. The contrast in the behavior of the patient on these two occasions and in the subsequent appearance and action of the wounds was not remarkable. The base of the first tonsil was cut through by the hot wire in less than a minute, the patient offering but very little objection, and not a drop of blood being lost. The soreness and pain in swallowing began to subside at the end of thirty-six hours, the patient meanwhile using a carbolized gargle at short intervals. On the third day there remained a little œdema of the uvula, and there was considerable inflammatory swelling of the pillars of the fauces. Except for the slough, which was beginning to separate and which involved to a slight extent the posterior pillar, the parts presented precisely the appearance expected after an excision of the tonsil. The left tonsil, considerably smaller than the right, was removed with Mackenzie's amygdalotome on the fifth day. Hæmorrhage at the time was much less than usual. The patient asserted that the pain was much more than with the preceding operation. In this case there was no subsequent bleeding, the soreness was of rather shorter duration, and the wound healed more quickly, which may be attributed to the relatively smaller dimensions of the second tonsil.

As a general rule, it is impossible to distinguish any marked difference in the sensitiveness of the stump or in the rapidity of the healing process.

These tests have satisfied me that the pain caused by the cautery-loop operation is not so much greater as to constitute a valid objection. Electro-puncture is in the aggregate more painful because of the frequent repetitions required, and is adapted only to cases in which for any reason the snare can not be used. By the use of cocaine it seems to me that but little, if anything, is gained beyond securing more complete rest for the parts and so facilitating the adjustment of the wire loop. In some cases even this effect of cocaine is defeated by the nausea which the drug is apt to produce.

In the technique of the galvano-cautery operation there is but little new. For the purpose of tucking the loop around and behind the tonsil, and holding it in position until the wire can be tightened, a little two-pronged instrument made of copper, so that it may be bent at any desired angle, and held firmly in a handle, will be found very convenient. It is a good plan, the moment the loop is seen to encircle and be in contact with the tonsil, to turn on the current for an instant. The wire adheres and may be tightened at leisure without danger of slipping or being thrown off by the act of gagging. In spite of the utmost care, the pillars of the fauces are in some cases more or less damaged, but the injury is generally superficial. In many cases, owing to the shape of the tonsil, the adhesion of a pillar, or the intolerance of the patient, it is very difficult to include more than half of the tonsil. These difficulties may be in part overcome by preliminary training of the patient and by thoroughly releasing an adherent pillar.

Additions to the literature of this subject have been rather numerous. The galvano-caustic method has been approved by Dr. F. H. Potter,* of Buffalo, in a paper read before the New York State Medical Association, and in a short communication from Dr. Jonathan Wright,† of Brooklyn. Dr. E. G. Kegley ‡ reports a case of extreme tonsillar hypertrophy in a man forty-three years old, in whom spasmodic attacks resembling hay fever, with the additional symptom of profuse salivation, were entirely relieved upon removal of the tonsils with the galvano-cautery loop. Noquet # reports a case of chronic abscess in the stump of an excised tonsil cured by use of the galvano-caustic point.

* "Med. News," Philadelphia, March 10, 1888.

† "Med. News," Philadelphia, March 24, 1888.

‡ "N. Y. Med. Jour.," Sept. 22, 1888.

"Arch. de laryngol., de rhinol.," etc., June 15, 1888.

This author, as well as Heryng and Charazac, expresses a preference for the galvano-cautery in removing enlarged tonsils. On the other hand, Moure prefers the amygdalotome, and he professes to have seen in children the development of retropharyngeal and circumtonsillar abscess after the use of the galvano-cautery. Three cases similar to that of Noquet have been observed by Garel,* who strongly recommends the cautery in hypertrophied tonsils, especially in cases showing a tendency to suppurative inflammation. Kafemann † recommends the galvano-cautery, while G. Dodart ‡ maintains that amygdalotomy should be employed but rarely, on account of the numerous accidents possible, and that ignipuncture is the operation of choice. Barette # describes the methods of operating, and expresses a decided preference for the thermo-cautery or the galvano-cautery as compared with the bistoury and the amygdalotome. In a paper by Ouspenski, ‖ on "The Treatment of Enlarged Tonsils in Children," based on fifty-two observations, the method by galvano-puncture is highly praised; and Valat,△ after noticing the fact that hæmorrhage following excision of the tonsils, rare in children, is by no means infrequent in adults, advises the use of the thermo-cautery.

Wilhelm Roth,◊ of Fluntern, advises the employment, under cocaine in ten- to twenty-per-cent. solution, of the finest point of the thermo-cautery inserted at three or four

* "Ann. des mal. du larynx," etc., January, 1889. See also Ricordeau, "Thèse de Paris," 1886; Gache, "Thèse de Paris," 1888; and Chauveau, "Thèse de Paris," 1888.

† "Deutsche Med.-Ztg.," No. 23, 1889.

‡ "Thèse de Bordeaux," 1888.

"Rev. gén. de clin. et de thérap.," Oct. 22, 1888.

‖ "Ann. des mal de l'oreille, du larynx," etc., July, 1888.

△ "Gaz. des hôp.," No. 132, 1888.

◊ "Lancet," London, Feb. 16, 1889.

places in the tonsil, the operation being repeated four or five times at intervals of two or three days. He finds this sufficient to reduce the tonsils to their normal size, with scarcely any pain and without the risk of troublesome hæmorrhage, which, contrary to my own experience, he says is not uncommon, *especially* in young children.

In commenting on the views of Saint-Germain, Delavan * expresses his disagreement for three reasons: 1. The process is far more difficult and painful than amygdalotomy. 2. There is not an authentic fatal case of hæmorrhage after tonsillotomy on record. 3. While he has seen and performed hundreds of amygdalotomies without having known diphtheria to occur in the wound in a single instance, he has known four cases in which the disease immediately followed the use of the galvano-cautery. The first objection should be modified to read "*somewhat* more difficult and painful." It is true that the galvano-cautery operations, at least those with the loop, require more time and trouble, possibly more manipulative skill, and somewhat elaborate apparatus. The second point may be admitted, and yet it is not much comfort to a patient who has lost a pint or so of blood, who is just on the verge of syncope, and who is already frightened almost to death, to be told that no one has ever yet bled to death after amygdalotomy, and he probably will not. All the statistics in the world will not reassure him. With regard to diphtheritic infection, it seems to me unreasonable to suppose that the germs of disease are any more likely to invade the system through a wound covered by an eschar than through an open wound left by amygdalotomy. The period of incubation in diphtheria varies from two days to a fortnight,† fresh wounds being earliest affected, and constitutional symptoms often preced-

* "Annual of the Univ. Med. Sci.," 1889, vol. iv, p. 13, E.

† Jacobi, "Treatise on Diphtheria," p. 67.

ing the appearance of the local lesion. It seems perfectly fair to assume that in these cases of immediate diphtheritic development, such as Delavan refers to and as cited by Saint-Germain,* the patient was already under the influence of the disease at the time of the operation. Such an accident has not occurred with either operation in my experience, and, indeed, it seems to me quite as apt to occur in the condition of the tonsils for which their removal is demanded as it is after any operation whatever. An enlarged tonsil, its crypts deepened and distended by inspissated and decomposing secretion, would seem to offer most excellent soil for the lodgment of disease germs.

One of the strongest arguments in favor of the galvano-caustic method is the fact that it insures against hæmorrhage, but a case recently reported by Werner † would seem to show that our contention in this particular must not be too positive. His patient began to bleed five days after treatment with the galvano-cautery, and is said to have been saved by compression of the carotid for ten days. Not having access to the original, I can not give further details. In the case of Capart, mentioned in my former paper, hæmorrhage was undoubtedly provoked by immoderate use of the voice. I suspect that to this cause, and perhaps indiscretion in diet, may be added as possible factors deficiency of heat and excessive traction on the loop during the operation. It is easy to conceive that in such case the resulting eschar might fail to give sufficient protection to the stump of the tonsil. Violent exercise, loud talking or singing, or an irritating particle of food might easily be the exciting cause of hæmorrhage. We can not too closely observe precautions in these particulars, espe-

* "Rev. des mal. de l'enfance," 1884, ii, 520.

† "Würtemberg. med. Corr.-Blatt," No. 31, 1888, in "Jour. of the Resp. Organs," January, 1889.

cially when we have reason to mistrust the caustic effect of the wire.

My zeal in advocating this method of treating hypertrophied tonsils is tempered by two facts, which I at least feel obliged to admit. First, burning, if not more painful, is at any rate more disagreeable to most people than cutting; second, the prevalent dread of hæmorrhage after excision of the tonsils is not warranted by clinical experience. I am more firmly convinced that the danger of hæmorrhage after the use of Mackenzie's amygdalotome, which is by far the most convenient, most efficient, and safest cutting instrument, has been unduly magnified. This is especially true of children, and in adults it seems to be the rule that bleeding ceases on the occurrence of syncope, if not before, and seldom recurs to an alarming extent. This statement has been verified by three cases which have come to my notice within the last eighteen months, by the case reported by Fuller,* in which the common carotid was tied without effect, and by numerous other instances. Excluding hæmatophilia, which is under any circumstances an alarming condition, we are not likely to meet with bleeding after amygdalotomy which need cause any anxiety. Perhaps Mackenzie's statement for tanno-gallic acid as a hæmostatic is exaggerated. Should it fail, however, without wasting time with other styptics, so justly condemned by Levis, we may confidently resort to the use of the tenaculum as suggested by that writer,† or the loop of the cold-wire snare may be applied, possibly with the aid of a transfixion needle. Cases in which ligation of the external carotid artery will need to be considered should become exceptional. The researches of Zuckerkandl‡ have proved that the course and

* "Am. Jour. of the Med. Sci.," Apr., 1888.

† "Med. News," Philadelphia, Dec. 8, 1888.

‡ "Med. Jahrb.," Wien, 1887, p. 309.

relations of the internal carotid artery must protect it from injury at least in guillotine operations. No one should be deterred from securing the relief afforded by amygdalotomy by fear of bleeding to death. Delavan asserts that there is not on record a single case of fatal hæmorrhage after the use of the guillotine for simple hypertrophy. The detrimental effects of enlarged tonsils are too obvious to be ignored. The benefit following their removal is with many of us a matter of almost daily observation. The risk of the operation itself need excite no apprehension.

At the same time the limited class of cases included in my enumeration must in some way be provided for, and for these the galvano-caustic method seems to combine the most desirable with the fewest objectionable features. The removal of a tonsil in this way requires a little more time, but in the majority of my cases the pain has not been excessive, the extirpation has been thorough, and the final result in every respect satisfactory.

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